Dietary sources of persistent organic pollutants in southern resident killer whales

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The population of southern resident killer whales *(Orcinus orca)* residing in Puget Sound/Georgia Basin declined 20% from 1996 to 2001. Potential factors contributing to this decline include reduced prey quality/quantity, exposure to high levels of toxic persistent organic pollutants (POPs) and noise and disturbance from vessel traffic. Studies to date have shown that southern residents contain higher concentrations of POPs than those in northern residents. Elevated contaminant levels may be due to dietary differences between these whale populations or to regional differences in POP concentrations in their prey. To determine if there were regional differences in POP concentrations in known summer prey of northern and southern resident whales, we sampled whole-body samples of free-ranging salmon from summer feeding areas of southern and northern resident killer whales. We found that Chinook and coho returning to Puget Sound had significantly higher POP levels than the other Pacific coast salmon populations. Puget Sound Chinook populations had 3 and 5 times the levels of PCBs and PBDEs than Chinook from other locations. Similarly, PCBs and PBDEs were 3 and 5 times higher in southern residents than those in northern resident killer whales. Examination of ratios of contaminants in southern residents and their potential prey showed that the whales are more likely feeding on salmon than other prey fish species from the Puget Sound region. These data suggest that Chinook salmon, especially Puget Sound populations, are a likely source of POPs to southern resident killer whales.